

Appln No. 10/783,227

Amdt date October 27, 2005

Reply to Office action of July 27, 2005

REMARKS/ARGUMENTS

Claims 20, 22-25 and 27-34 are pending in the Office Action. Claims 20 and 25 have been amended. No claims have been canceled. Claims 27-34 have been added. There is no new matter. The Applicants respectfully request allowance of claims 20, 22-25 and 27-34.

The specification is amended to apply the corrections to the cross reference to the related application (serial no. 10/460,895) as suggested by the Examiner.

The abstract is amended to provide disclosure directed to an invention claimed in the current application. A clean copy of the replacement abstract is appended hereto as Appendix A, following page 18.

Claim 25 is objected to because of an informality. In view of the amendment to claim 25 entered and noted as entered in the Advisory Action dated October 5, 2005, this deficiency has been cured.

Claims 20, 22-23 and 25 are rejected as allegedly being anticipated under 35 U.S.C. § 102(b) by Kiyonaga et al. (U.S. Patent No. 5,652,767) ("Kiyonaga"). Claims 20 and 22 are rejected as allegedly being anticipated under 35 U.S.C. § 102(e) by Tomofuji et al. (U.S. Patent No. 6,496,552) ("Tomofuji"). Claim 24 is rejected as allegedly being unpatentable over Kiyonaga under 35 U.S.C. § 103(a). The Applicants respectfully

Appln No. 10/783,227
Amdt date October 27, 2005
Reply to Office action of July 27, 2005

traverse the 102(b), 102(e) and 103 rejections. The Applicants submit that all of the claims pending in this application are patentably distinguishable over the cited references, and reconsideration and allowance of the claims in this application are respectfully requested.

The Applicants agree with the Examiner's statement in the Advisory action that the claimed term "amplitude" is a broad term, however, the Applicants respectfully disagree that it is broad enough to encompass an average level of a clock. The term "amplitude" is known by those skilled in the art to refer to a "nonnegative scalar measure of a wave's magnitude of oscillation, that is, magnitude of the maximum disturbance in the medium during one wave cycle" (for example, see Wikipedia online encyclopedia, <http://en.wikipedia.org/wiki/Amplitude>), while the term "average level of a clock" necessarily implies detecting a level that is an average level over time, and is not the magnitude over one cycle. Therefore, the Applicants thank the Examiner for the suggestion to amend the term "amplitude" to "instantaneous amplitude" but the Applicants respectfully believe that amendment in such regard is not needed at this time.

Claim 20

Amended independent claim 20 includes, among other limitations, "a threshold controller programmed with information about clock amplitude versus threshold characteristics and for collating an amplitude of the extracted clock with the clock

Appln No. 10/783,227
Amdt date October 27, 2005

Reply to Office action of July 27, 2005

amplitude versus threshold characteristics and for determining and providing to the discriminator a discrimination threshold; and a discriminator for discriminating the electrical signal by applying to the electrical signal the determined discrimination threshold."

First, for the reasons provided above, Kiyonaga does not teach "a threshold controller programmed with information about clock amplitude versus threshold characteristics and for collating an amplitude of the extracted clock with the clock amplitude versus threshold characteristics." (Emphasis Added). Instead, Kiyonaga teaches detecting an average level of a clock, and not an "amplitude" of the clock. (Col. 15, lines 36-38).

Second, neither Kiyonaga nor Tomofuji teach "a threshold controller programmed with information about clock amplitude versus threshold characteristics and for collating an amplitude of the extracted clock with the clock amplitude versus threshold characteristics." (Emphasis Added).

Kiyonaga teaches an average detecting circuit 88 merely receiving an average level of the clock from the pre-amplifier 23n+1 and the average level clock being merely "supplied, as a threshold voltage for the clock, to the limiter amplifier 24n+1. (Col. 15, lines 36-40). Accordingly, Kiyonaga teaches the average detecting circuit merely passing the average detected level to the limiter amplifier. The average detecting circuit does not collate the average detecting level with average

Appln No. 10/783,227
Amdt date October 27, 2005
Reply to Office action of July 27, 2005

detecting level versus threshold characteristics. Further, the average detecting circuit is not programmed with average detecting level versus threshold characteristics. Therefore, amended claim 20 is not anticipated by Kiyonaga.

Tomofuji teaches "the reference signal generator 33b of the control circuit 33 generates a reference signal Vr by amplifying the signal output from the synchronous detector 32." (Col. 17, lines 31-34). (Emphasis Added). Accordingly, Tomofuji teaches merely amplifying the signal output and eventually passing a version of the amplified signal to the amplifier 31a. Further, the control circuit table taught in Tomofuji correlates the average value of the data signal Vm, not the signal output from the synchronous detector, with the output reference level. (Col. 10, lines 25-40; FIG. 4). As similar to the case with Kiyonaga, the Applicants can find no teaching in Tomofuji of the reference generator collating the synchronous detector output with synchronous detector output versus threshold characteristics. Nor can the Applicants find teaching in Tomofuji of the reference generator being programmed with synchronous detector output versus threshold characteristics. Therefore, amended claim 20 is not anticipated by Tomofuji.

Accordingly, neither Kiyonaga nor Tomofuji anticipate amended claim 20. Therefore, the Applicants respectfully request reconsideration and allowance of amended claim 20.

Appln No. 10/783,227

Amdt date October 27, 2005

Reply to Office action of July 27, 2005

Dependent claims 21 and 23-24 depend from claim 20 and therefore include all of the limitations of claim 20, in addition to other limitations. Accordingly, neither Kiyonaga nor Tomofuji anticipate claims 21 and 23-24. Accordingly, claims 21 and 23-24 are patentable for at least the reasons presented above with regard to claim 20, and for their additional limitations. Therefore, the Applicants respectfully request reconsideration and allowance of claims 21 and 23-24.

Claim 25

Amended claim 25 includes, among other limitations, "determining a discrimination threshold by collating an amplitude of the extracted clock with the stored information about clock amplitude versus threshold characteristics." (Emphasis Added). For some of the reasons explained above, amended claim 25 is not anticipated by Kiyonaga nor Tomofuji.

Additionally, amended claim 25 includes, among other limitations, "storing information about clock amplitude versus threshold characteristics." (Emphasis Added). As noted above, the only stored table that the Applicants can find taught by Tomofuji correlates the average value of the data signal Vm, not the signal output from the synchronous detector, with the output reference level. (Col. 10, lines 25-40; FIG. 4).

Accordingly, amended claim 25 is not anticipated by Kiyonaga nor Tomofuji and therefore amended claim 25 is patentable over these references. Therefore, the Applicants

Appln No. 10/783,227

Amdt date October 27, 2005

Reply to Office action of July 27, 2005

respectfully request reconsideration and allowance of amended claim 25.

Claim 24

Claim 24 depends from amended independent claim 20. As such, it includes all of the limitations of claim 20, in addition to other limitations. For at least the reasons given above with regard to claim 20, Kiyonaga does not teach or suggest all of the limitations of amended independent claim 20 that are imported into claim 24 through its dependency on claim 20. Therefore, claim 24 is patentable over Kiyonaga for at least these reasons, and for its additional limitations. Therefore, the Applicants respectfully request reconsideration and allowance of claim 24.

Claim 28

Independent claim 28 includes, among other limitations, "a threshold controller for generating a discrimination threshold for the discriminator according to a relationship between the extracted clock amplitude and a bit error rate to which the extracted clock amplitude corresponds."

There is no new matter in claim 28 as support for the claim is located on page 20, lines 11-30 and in Figs. 12-15 of the substitute specification. As stated in the specification:

The threshold control circuit 166 controls the discrimination threshold of the discriminating circuit 160 at the optimum value Vx according to the amplitude of the clock signal from the linear amplifier 164.

Appln No. 10/783,227
Amdt date October 27, 2005
Reply to Office action of July 27, 2005

That is, as shown in FIG. 14, when noise on the mark side is large [which is noted in FIG. 14 as "Increase in bit error rate on mark side"], the optimum threshold moves to the space side and at the same time the amplitude of the clock decreases due to the influence of the noise.

Accordingly, as shown in FIG. 14 and in the cited section above, when the noise on the mark side increases, the bit error rate on the mark side increases and the amplitude of the clock decreases. Therefore, the claimed limitation of "a threshold controller for generating a discrimination threshold for the discriminator according to a relationship between the extracted clock amplitude and a bit error rate to which the extracted clock amplitude corresponds" is taught in the Applicants' substitute specification and is not new matter.

Neither Kiyonaga nor Tomofuji, teach or suggest, neither alone nor in combination, "a threshold controller for generating a discrimination threshold for the discriminator according to a relationship between the extracted clock amplitude and a bit error rate to which the extracted clock amplitude corresponds." (Emphasis Added).

Rather, as noted above, Kiyonaga teaches the average level clock being merely "supplied, as a threshold voltage for the clock, to the limiter amplifier 24n+1. (Col. 15, lines 36-40). The Applicants can find no teaching of "generating a

Appln No. 10/783,227

Amdt date October 27, 2005

Reply to Office action of July 27, 2005

discrimination threshold . . . according to a relationship between the extracted clock amplitude and a bit error rate."

Further, as noted above, Tomofuji teaches "the reference signal generator 33b of the control circuit 33 generates a reference signal V_r by amplifying the signal output from the synchronous detector 32." (Col. 17, lines 31-34). (Emphasis Added). Accordingly, Tomofuji teaches merely amplifying the signal output and eventually passing a version of the amplified signal to the amplifier 31a. Further, the control circuit table taught in Tomofuji correlates the average value of the data signal V_m with the output reference level. (Col. 10, lines 25-40; FIG. 4). Accordingly, the Applicants can find no teaching of "generating a discrimination threshold . . . according to a relationship between the extracted clock amplitude and a bit error rate." (Emphasis Added).

Therefore, neither Kiyonaga nor Tomofuji, teach or suggest, neither alone nor in combination, all of the limitations of claim 28. Therefore, claim 28 is patentable over these cited references for at least these reasons. Therefore, the Applicants respectfully request allowance of claim 28.

Dependent claims 29-34 depend from claim 28 and therefore include all of the limitations of claim 28, in addition to other limitations. Accordingly, neither Kiyonaga nor Tomofuji, teach or suggest, neither alone nor in combination, all of the limitations of claims 29-34. Therefore, these claims are

Appln No. 10/783,227
Amdt date October 27, 2005
Reply to Office action of July 27, 2005

patentable over these cited references for at least the reasons given with regard to claim 28, and for their additional limitations. Therefore, the Applicants respectfully request allowance of claims 29-34.

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is now in condition for allowance, and accordingly, reconsideration and allowance are respectfully requested.

Respectfully submitted,
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